Update on California's 8-Hour Ozone and PM2.5 State Implementation Plans

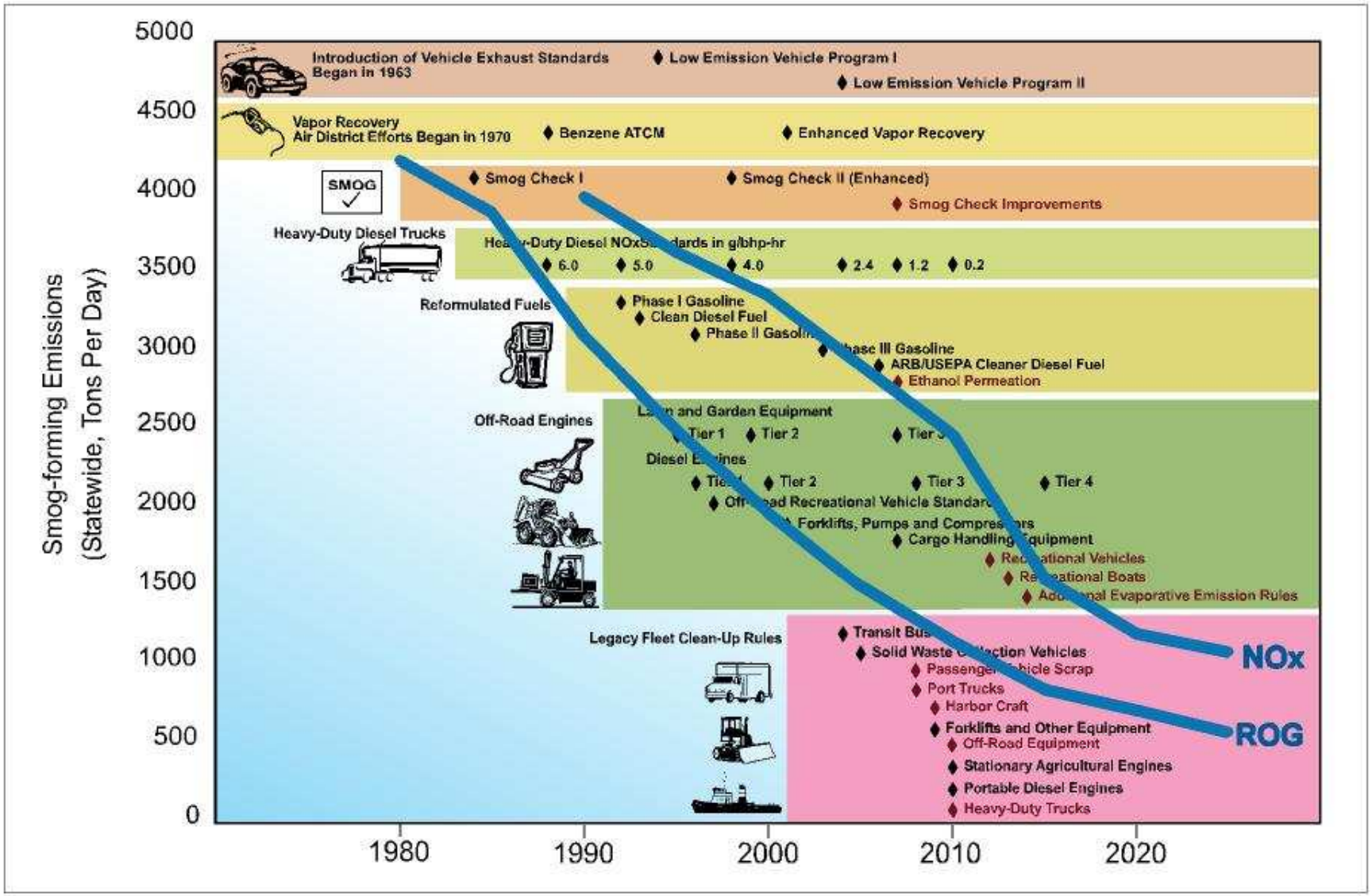
Carl Moyer Advisory Group Meeting

September 18, 2008

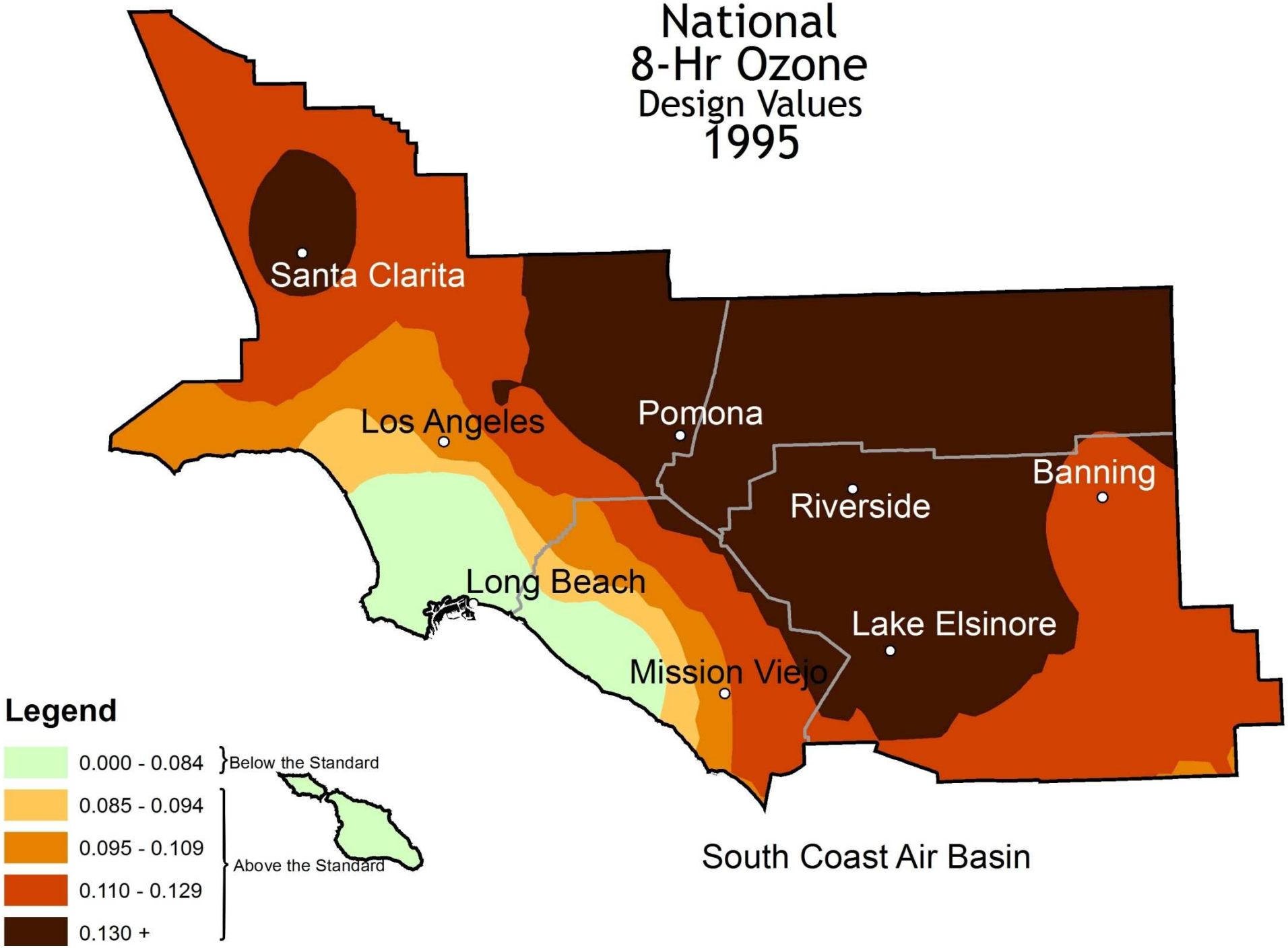
2007-2008 SIPs

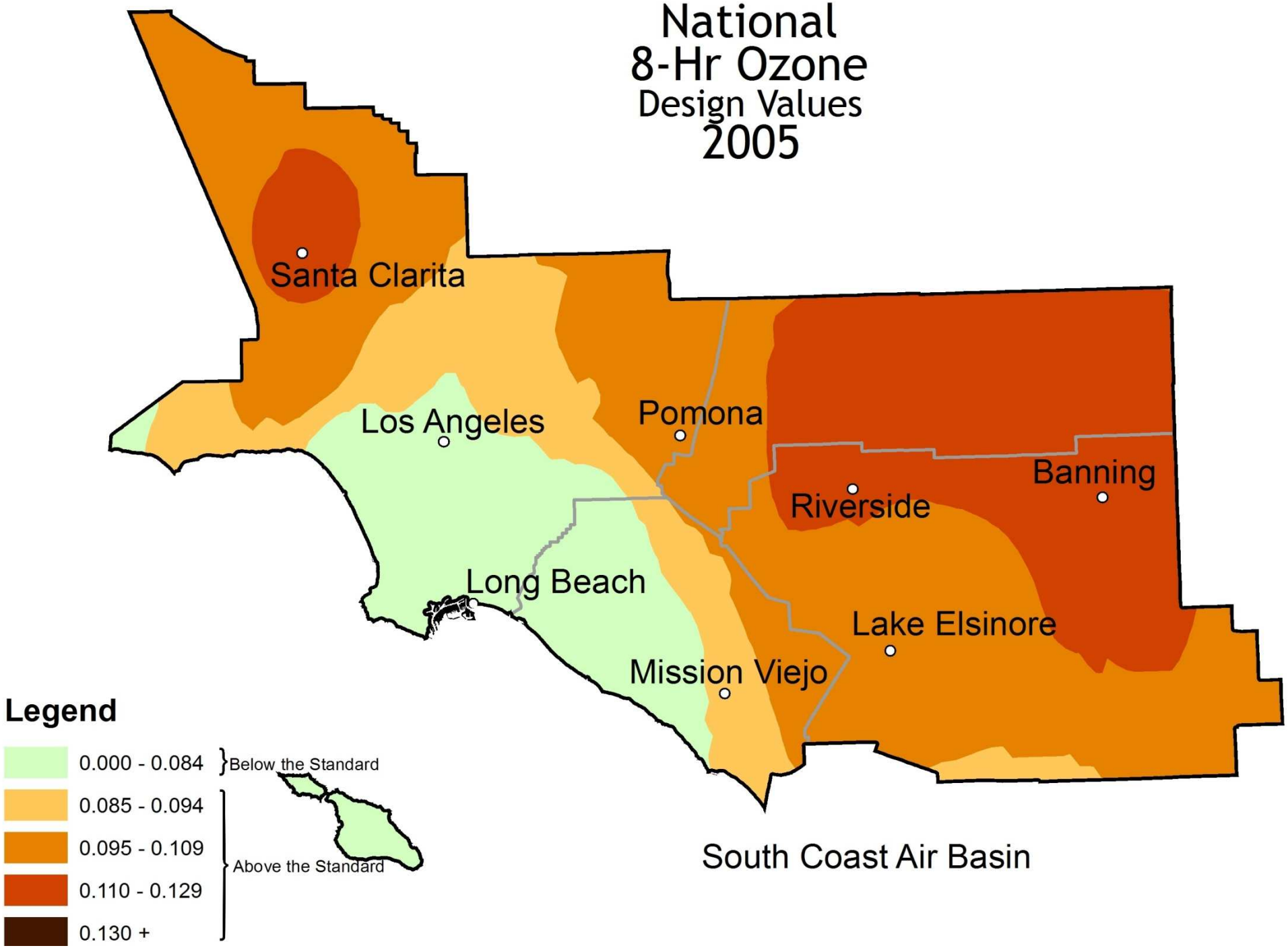
- Required for 8-hour ozone and PM2.5
- State Strategy addresses pollution sources under State and federal control
- Adopted control measures
- New measures

Air Resources Board Increasingly Stringent Emission and Fuel Standards



Programs in red are proposed in the 2007 State Strategy
Diamonds (♦) represent beginning of implementation
Not all ARB programs are shown


National
8-Hr Ozone
Design Values
1995
Santa Clarita
Los Angeles
Pomona
Riverside
Banning
Long Beach
Lake Elsinore
Mission Viejo
Legend
0.000 - 0.084
0.085 - 0.094
0.095 - 0.109
0.110 - 0.129
0.130 +
Below the Standard
Above the Standard
South Coast Air Basin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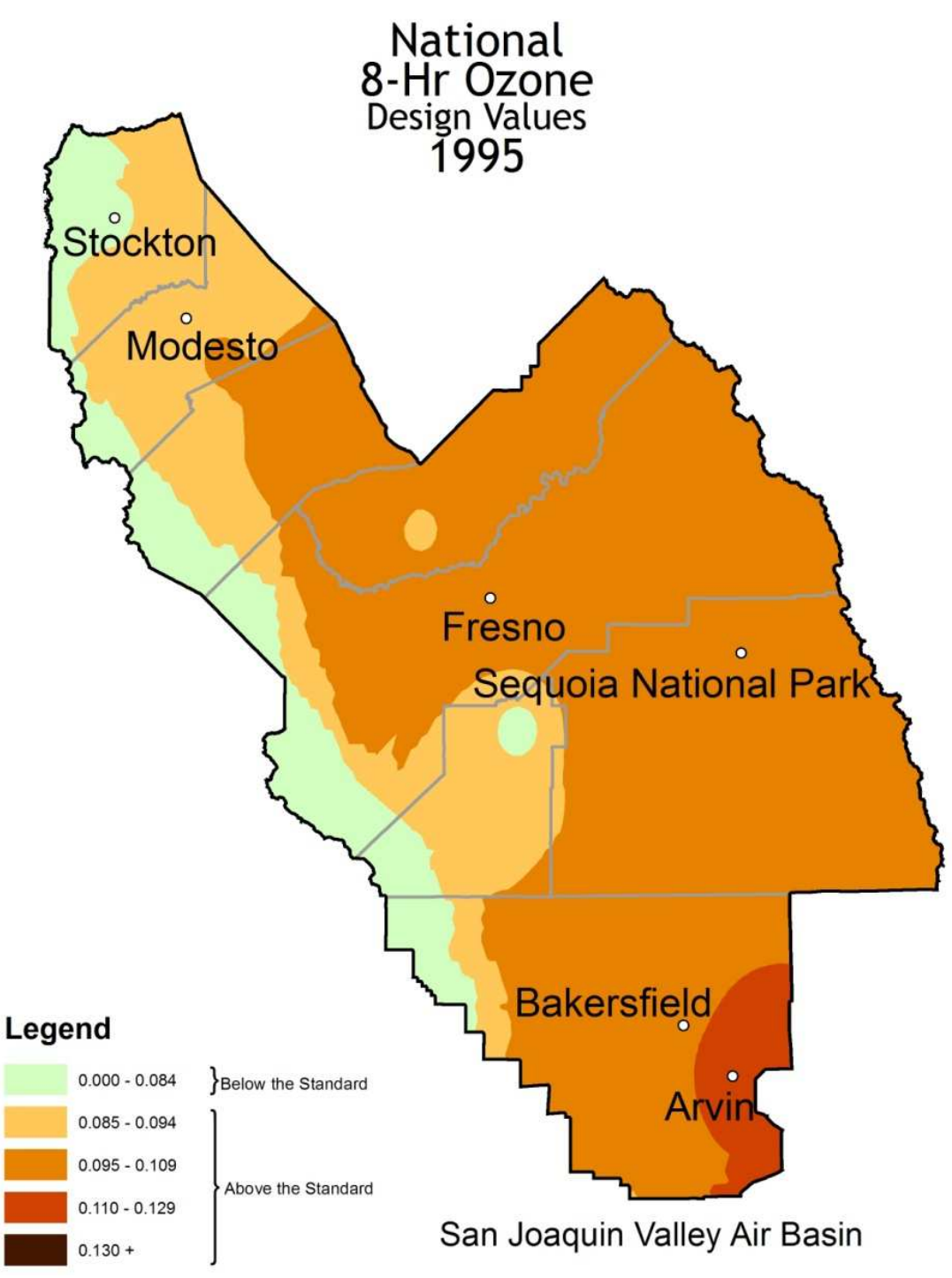
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Fresno
Sequoia National Park
Bakersfield
Arvin
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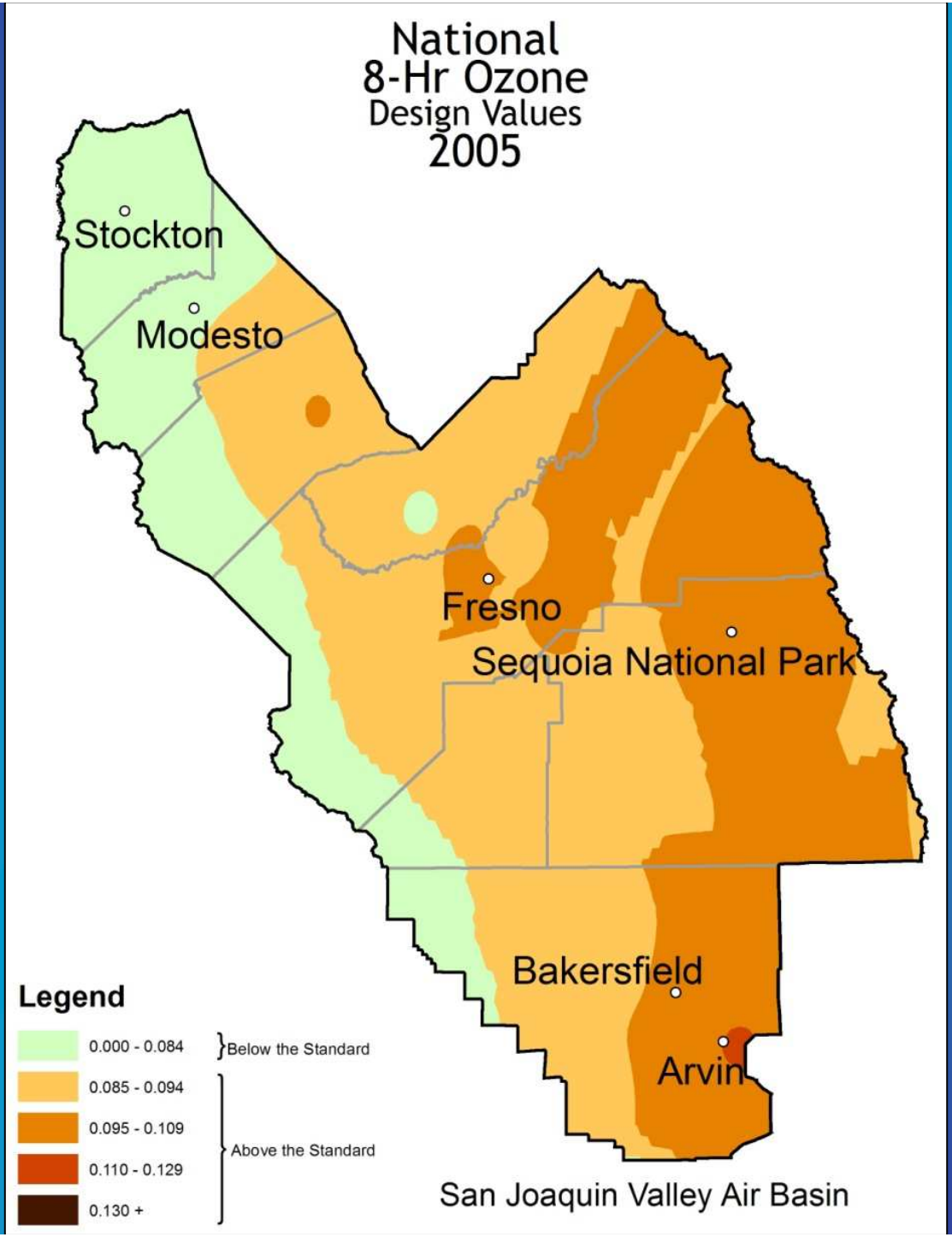
Below the Standard
Above the Standard
San Joaquin Valley Air Basin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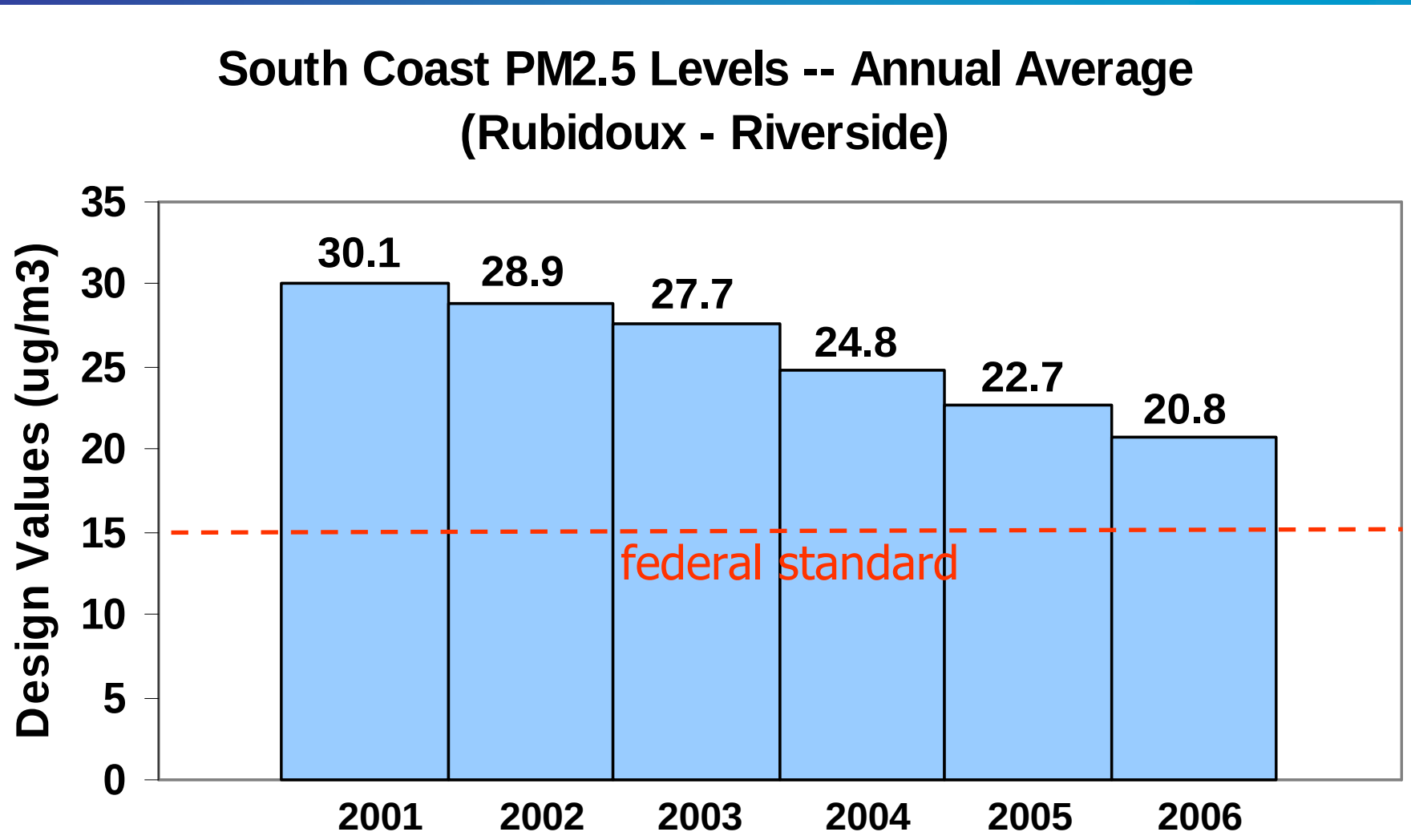
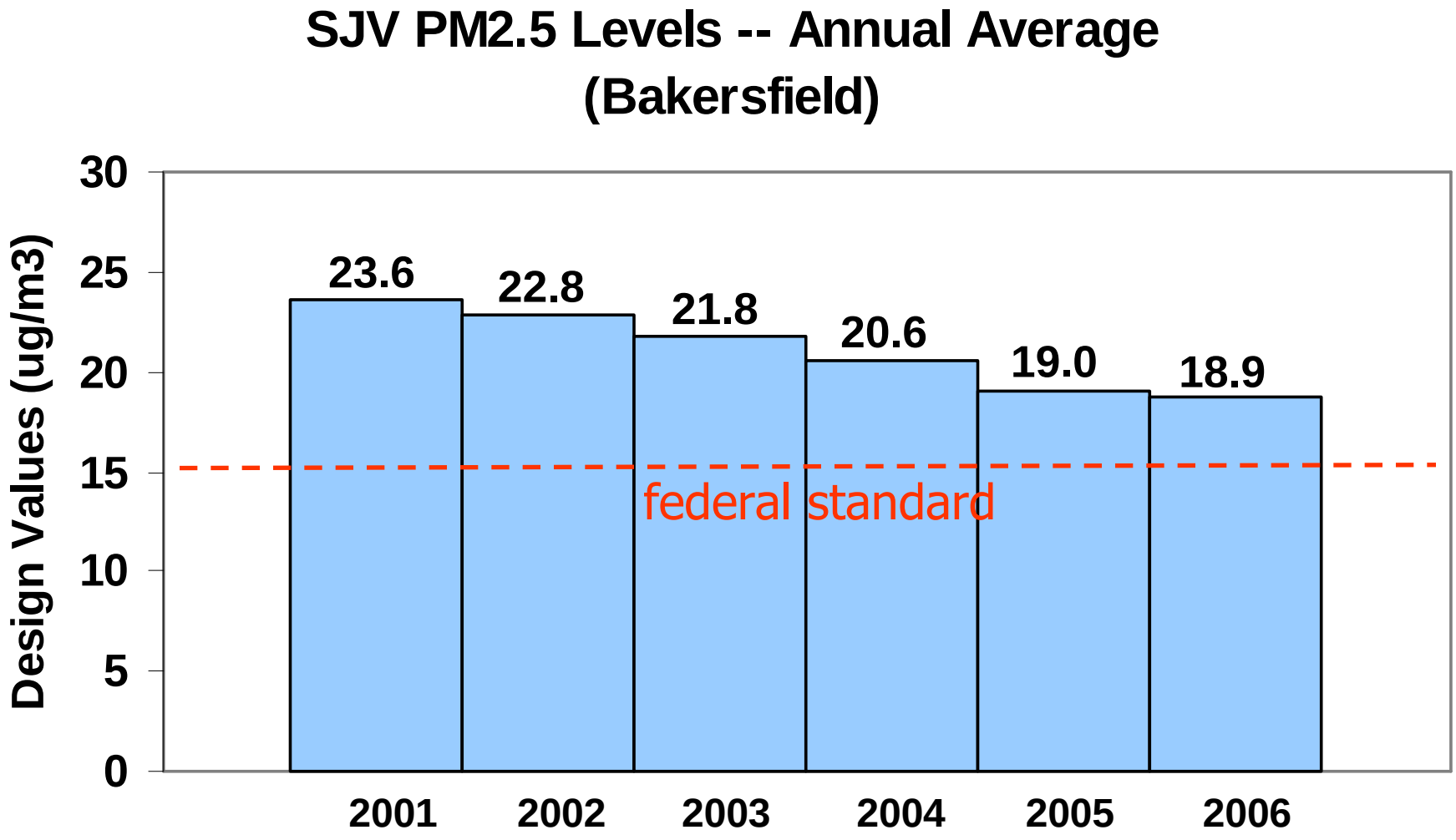
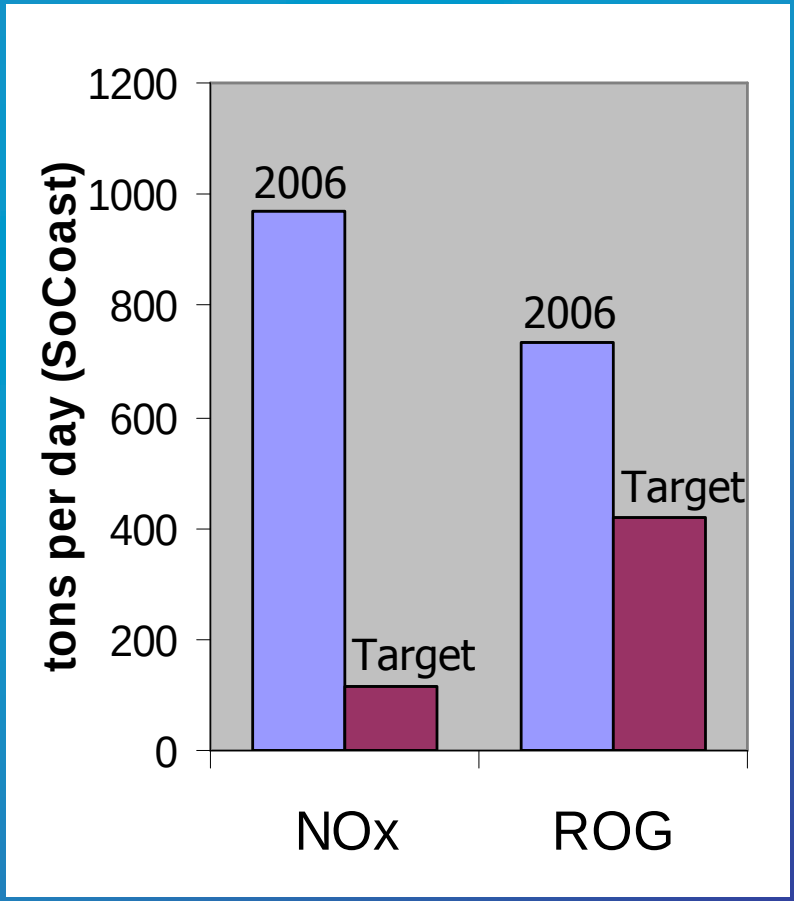
San Joaquin Valley Air Basin


South Coast PM2.5 Levels -- Annual Average
(Rubidoux - Riverside)
Design Values (ug/m3)
35
30
25
20
15
10
5
0
30.1
28.9
27.7
24.8
22.7
20.8
federal standard
2001
2002
2003
2004
2005
2006


SJV PM2.5 Levels -- Annual Average
(Bakersfield)
Design Values (ug/m3)
30
25
20
15
10
5
0
23.6
22.8
21.8
20.6
19.0
18.9
federal standard
2001
2002
2003
2004
2005
2006

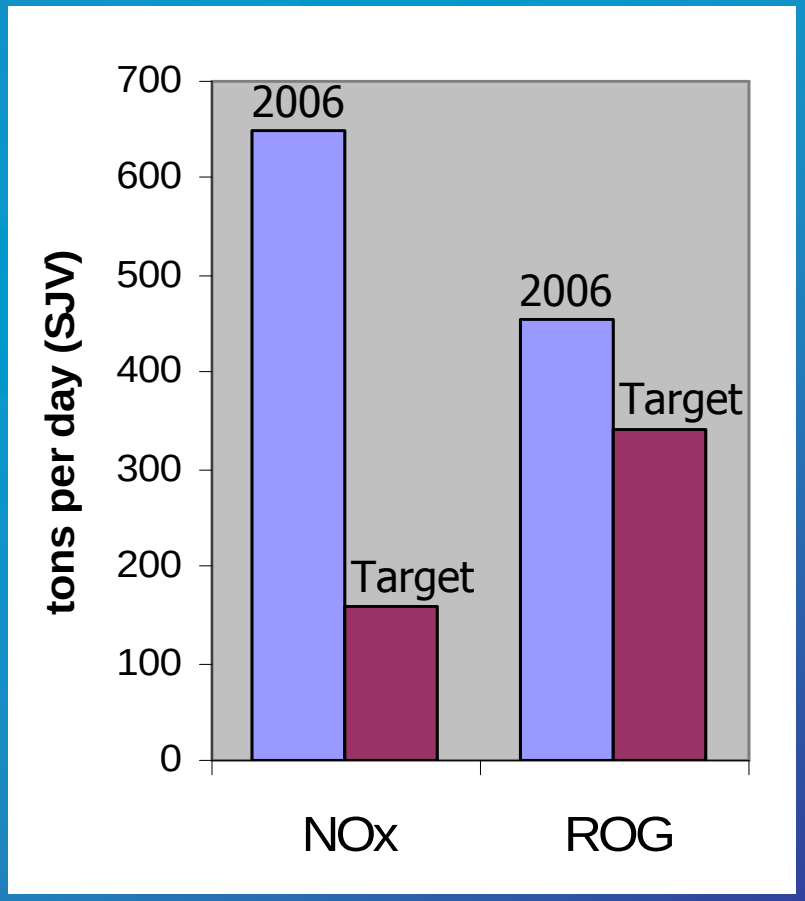
Defining the Ozone Problem (South Coast)

- **South Coast reduction target:**
  - **88% NOx**
  - **43% ROG**
- **South Coast must attain by 2023**



Defining the Ozone Problem (San Joaquin Valley)

- San Joaquin reduction target:
  - 75% NOx
  - 25% ROG
- San Joaquin must attain by 2023



State Strategy Profile

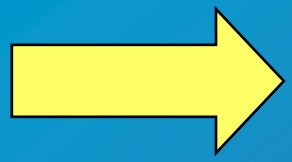
- Comprehensive
  - All major categories of emissions
- Innovative
  - Ground-breaking legacy fleet measures
  - Anticipates tomorrow's technology
- Aggressive
  - Reduces emissions at unparalleled rate

State Strategy
NOx Emphasis

- NOx is common to both ozone and particulate pollution
- NOx reductions critical to help reach both ozone and PM2.5 standards
- Most NOx is from mobile sources
- ARB fleet rules essential

State Strategy Categories

- Construction Fleet
- Heavy-Duty Trucks
- Passenger Vehicles
- Ships
- Locomotives
- Evaporative and exhaust standards and consumer products



90% of South Coast NOx Emissions

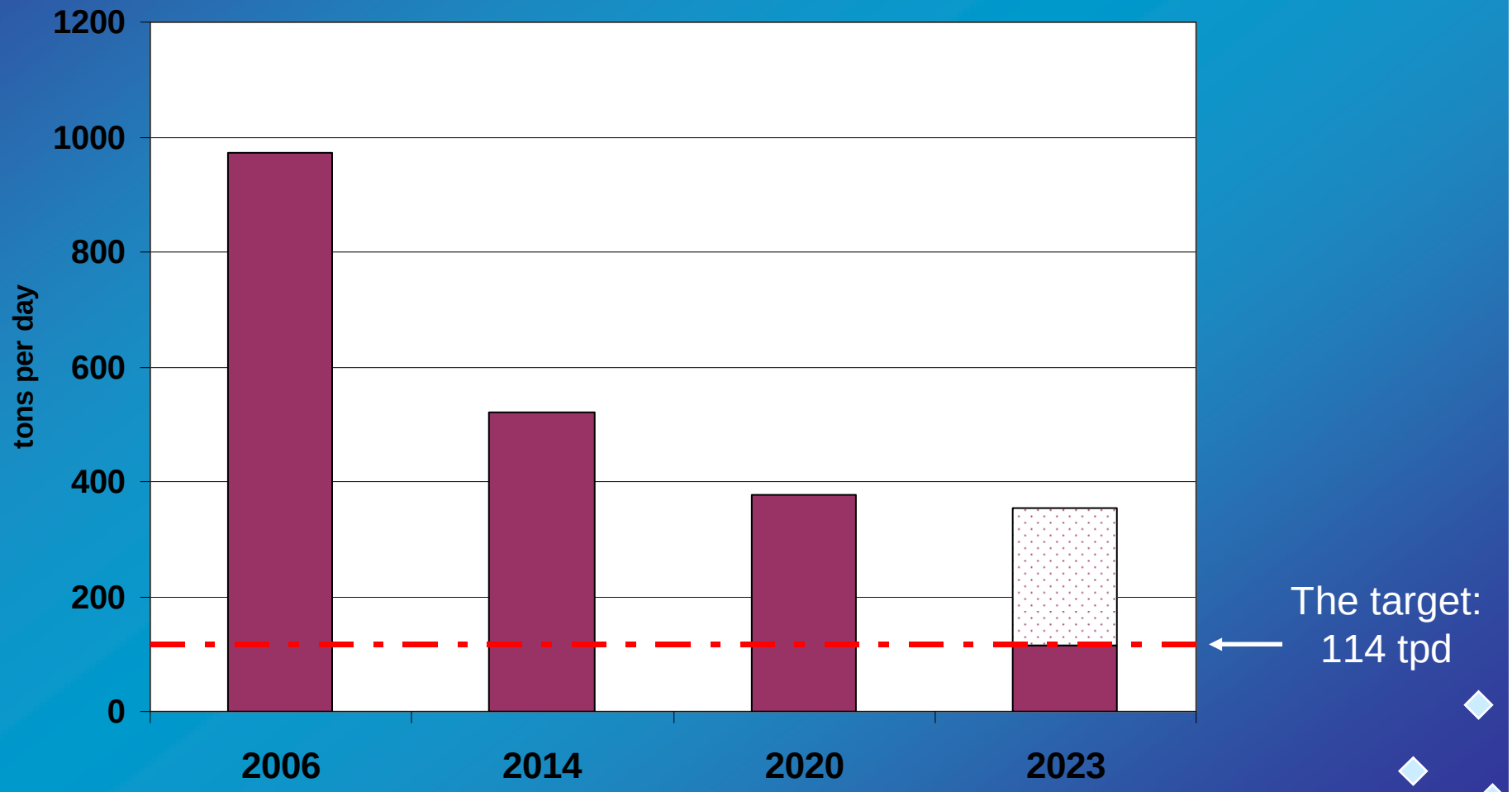
ROG Strategies

- Recreational boats
- Off-road recreational vehicles
- Additional evaporative standards
- Consumer products
- Reformulated gasoline program
- Passenger vehicles strategies

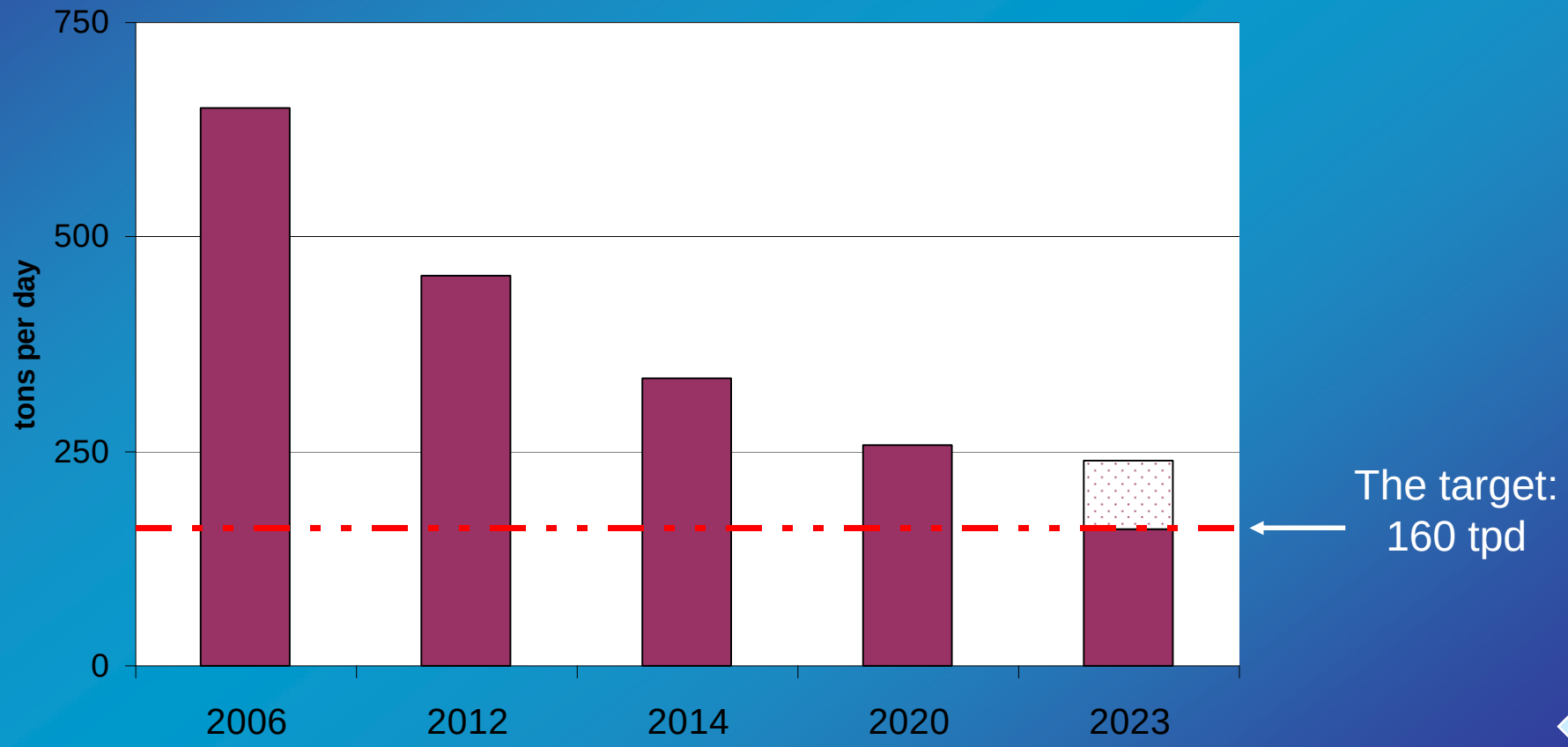
2007 State Strategy
NOx Emission Reductions (tpd)

	2014		2023	
	South Coast	San Joaquin Valley	South Coast	San Joaquin Valley
Heavy-duty trucks	76.0	61.4	18.3	21.2
Off-road Equipment	10.5	3.7	13.9	5.4
Passenger Vehicles	14.4	3.8	7.1	2.1
New Measure Total	122	76	141	46

South Coast NOx Emissions with State Strategy



SJV NOx Emissions with State Strategy



Need for New Technology Development

- SIP anticipates innovation
  - South Coast: 241 tpd NOx + 40 tpd ROG
  - San Joaquin: 81 tpd NOx
- Analysis confirms new technologies needed in South Coast and San Joaquin Valley

Advancing Technology and Accelerating Progress

- Innovation essential
- Incentives would speed progress

SIP Status

Adopted and submitted to U.S. EPA

- Ozone and PM2.5 SIPs for South Coast and San Joaquin Valley
- Ozone SIPs for San Diego, Ventura, Antelope Valley and Western Mojave Desert, and Coachella Valley

Under development

- Ozone SIPs for Sacramento and Imperial

SIP Status (contd.)

Awaiting reclassification

- Butte County
- Western Nevada County
- Central Mountain Counties
- Southern Mountain Counties
- Eastern Kern County

New Federal Standards

- 2006 PM2.5 standard
  - 24-hour standard dropped from 65μg/m^3 to 35μg/m^3
  - Modeled attainment by 2018
- 2008 8-hour ozone standard
  - Standard dropped from 0.08 ppm to 0.075 ppm
  - Modeled attainment for Extreme areas by 2029

Summary

- Ozone and PM2.5 SIPs need very large NOx reductions
- SIPs call for accelerated deployment of clean equipment
- Incentives would speed progress
- New standards will be even more challenging to meet